

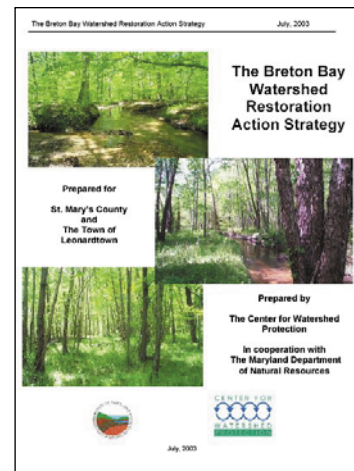
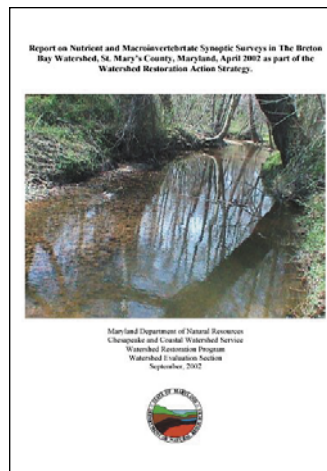
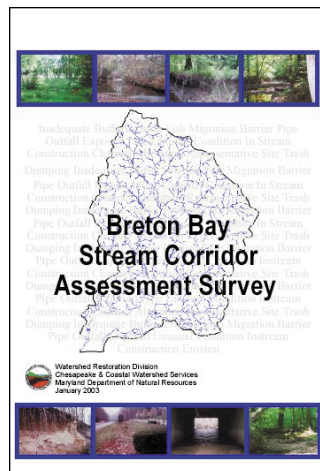
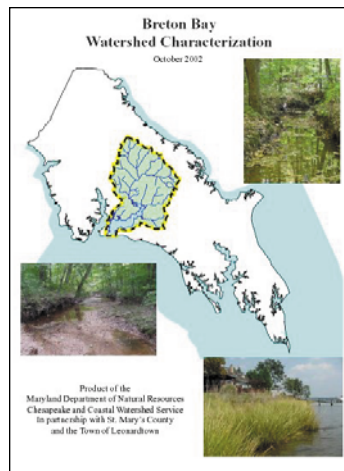
Watershed Restoration Action Strategies...

The Watershed Restoration Action Strategy (WRAS) Partnership Program is a multi-year, multiprogram approach to integrated watershed protection and restoration. The goal is to comprehensively design and implement water quality and habitat improvement activities on a local watershed scale.

Maryland's Coastal Program was a critical partner in the development of the WRAS Program and continues to work with local governments, state agencies, and universities to develop and implement watershed strategies. Each strategy includes a watershed characterization, stream corridor assessment, nutrient synoptic survey, public participation, goal setting, and action plan development. WRAS watershed targeting is based on Maryland's Clean Water Action Plan (1998), which called for the assessment of the condition of the State's waters. The resulting Unified Watershed Assessment (UWA) defined a set of those watersheds that were most in need of restoration and/or protection. Funding for development and implementation of WRAS is provided from both the Coastal Program and the State's Nonpoint Source Pollution Control Program (Section 319 Clean Water Act).



Little Paint Branch before and after restoration work. The WRAS Program includes a stream corridor assessment that identifies restoration opportunities.



Each WRAS project has the opportunity to receive a watershed characterization, stream corridor assessment survey, and a synoptic survey to help in the development of the final WRAS Plan.



Maryland Coastal Program
Watershed Services
Maryland Department of Natural Resources
Tawes State Office Building, E-2
580 Taylor Ave
Annapolis, MD 21401



Toll Free in Maryland: 1-877-620-8DNR Ext. 8730
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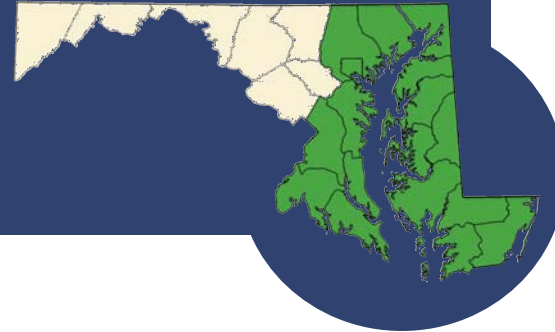
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Coastal Nonpoint Source Pollution

Maryland Coastal Program



The Issue...

Nonpoint source pollution (NPS), unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS is caused when rainfall or snowmelt, moving over and through the ground, picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, coastal waters and underground sources of drinking water. In Maryland, including the coastal zone, NPS pollution is a primary cause of water quality impairment.



Nearshore development and marinas are both contributors to nonpoint source pollution.

The State's Involvement...

In an effort to develop a more comprehensive solution to the problem of polluted runoff in coastal areas, Congress established a nonpoint source reduction program targeted at coastal waters. This program, which has since become known as the "\$6217 Coastal Nonpoint Source Control Program," was intended to foster better coordination between federal and state coastal zone management and clean water programs to maximize their effectiveness in protecting coastal waters.

\$6217 requires states to control nonpoint source pollution by implementing management measures that prevent or reduce pollution from the following activities: urban development, agriculture, marinas and recreational boating, forestry and hydromodification. The federal

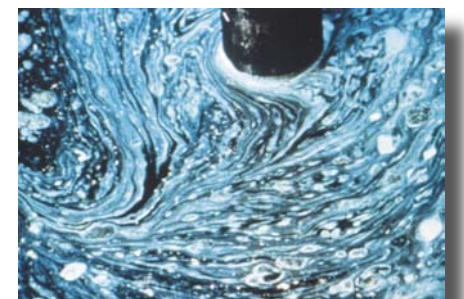
program requires that each state develop a Coastal Nonpoint Program that contains enforceable policies and mechanisms for each management measure to insure authority to implement best management practices. Each state must also track the program's implementation and effectiveness.

In 1999, Maryland became the first state in the Nation to receive full approval of its Coastal Nonpoint Pollution Control Program from the National Oceanic and Atmospheric Administration and the U.S. Environmental Protection Agency. Maryland's full approval was based on its meeting all program conditions, including having enforceable policies and mechanisms to implement management measures.

The Coastal Program's Role...

In Maryland, the Coastal Nonpoint Source Program is administered together with the Clean Water Act (CWA) §319 NPS Program at the Department of Natural Resources (DNR). The Maryland Nonpoint Source Management Plan update (December 1999) outlined a five-year action plan and fifteen-year strategy to implement coastal nonpoint source management measures.

Since 1999, Maryland has made significant progress in controlling and preventing nonpoint source pollution, implementing §6217 management measures and meeting or exceeding the goals laid out in its five-year Plan and fifteen-year Strategy. Maryland's Program has made particular progress in three areas: agriculture, on-site sewage disposal systems and marinas.



Polluted water near a marina.



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Brad Grace, a certified clean marina operator. Photo courtesy of Maryland Clean Marina Program.

The Clean Marina Program...

One hundred seventy-two marinas, boatyards, and yacht clubs statewide have pledged to do their part to keep Maryland's waterways free of harmful chemicals, excess nutrients, and debris. As of December 2003, sixty-eight of those marinas met specific criteria and were certified as "Clean Marinas." The comprehensive nature of the Program contributes to its success. The State encourages marinas to adopt pollution prevention measures, such as the use of sewage pumpout stations and vacuum sanders through multiple avenues:

workshops, publications, training materials, and demonstration projects. The initiative strives to create a market demand for Clean Marinas among boaters by publicizing the certification program, providing financial and technical assistance, and by distributing clean boating information at boat shows and trade fairs. The Coastal Program has played a key role in the development, implementation and operational components of the Clean Marina Program, since its inception in 1997.



Wastewater Recycling System. Photo courtesy of Maryland Clean Marina Program.

Agriculture...



Photo by Tim Connelly

Agriculture is a predominant feature of much of the Maryland landscape, playing a significant role in the State's history, culture, and environment. Maryland has a variety of agricultural programs (Nutrient Management Program, MD Agricultural Water Quality Cost Share Program, Soil Conservation and Water Quality Planning, Conservation Reserve Enhancement Program, Manure Transport Program, and Agricultural Water Management Program) that address the control and reduction of nonpoint source pollution. Maryland farmers have achieved the majority of water quality objectives in every major watershed and continue to exceed their goals for implementing best management practices (BMP's) to manage nutrients, control erosion and protect water quality. The Coastal Program has provided annual funding to address agricultural nonpoint source pollution in

Maryland. Funding has been used to support Soil Conservation Districts who provide technical assistance to the agricultural community by: assisting with watershed planning; installing BMP's; assisting with the development, review and implementation of Soil Conservation and Water Quality Plans; and implementing projects through the Maryland Agricultural Water Quality Cost-Share Program.



Red Barn at Carroll County Farm Museum.

On-site Sewage Disposal Systems...

Approximately one out of every five households in Maryland relies on a septic system for household waste removal. Nutrient loads from septic systems to surface and ground waters are a growing concern since most systems use 50-year-old technologies that are not designed to remove nutrient pollution, the key type of pollution targeted by the Chesapeake and Atlantic Coastal Bays restoration efforts. The federal Coastal Nonpoint Pollution Control Program requires states to ensure that all new onsite sewage disposal systems (OSDS) are properly constructed and placed so as to prevent pollution of surface and ground waters and that existing OSDS are operated and maintained to prevent the discharge of pollutants. In Maryland, this measure is satisfied by various State codes that serve to reduce the impact of OSDS, inspection programs, homeowners education about septic maintenance and innovative systems, and workshops to train local governments and contractors about innovative systems. Recent Coastal Program activities related to OSDS's include participation on the Chesapeake Bay Tributaries Strategies, Septics Task Force and co-hosting a Coastal Decision-Makers Workshop in March 2003. The Coastal Program also provides assistance to local governments to improve their ability to address OSDS issues. Current activities supported by the Program include:

- Development of accurate and complete inventories, databases, and maps of properties served by septic systems in eight coastal counties.
- Development of OSDS management strategies designed to enhance protection of areas known to have nitrogen-sensitive waters in four counties and one tri-county council region.
- Training workshops for more than 400 attendees were conducted by the Maryland Department of Environment that addressed the design, installation, inspection, maintenance, and operation of OSDS. Workshops included: (1) Innovative and Alternative On-site Sewage Disposal Systems; (2) Design and Construction; (3) Construction of Sand Mount OSDS; (4) Best Management Practices; and (5) Site Evaluation Training.
- The University of Maryland, Center for Environmental Science conducted a demonstration study to support local government quantification of septic system input to surface waters. Funds were used to assess and map the plumes of sewage and septic derived nitrogen within the Choptank and Patuxent Rivers to assist with planning and targeting of local watershed strategies.



Photo courtesy of Worcester County.